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IEC 61850-9-2:2011+AMD1:2020 CSV

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Communication networks and systems for power utility automation

Part 9.2: Specific communication service mapping (SCSM) — Sampled values over ISO/IEC 8802-3



AS IEC 61850.9.2:2025

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Part 9.2: Specific communication service mapping (SCSM) — Sampled values over ISO/IEC 8802-3

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(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

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Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee EL-050, Power System Control and Communication, to supersede AS 61850.9.2:2005, *Communication networks and systems in substations, Part 9.2: Specific communication service mapping (SCSM) - Sampled values over ISO/IEC 8802-3.*

The objective of this document is to define the specific communication service mapping for the transmission of sampled values according to the abstract specification in AS IEC 61850.7.2:202X. The mapping is that of the abstract model on a mixed stack using direct access to an ISO/IEC 8802-3 link for the transmission of the samples in combination with AS IEC 618508.1:202X. Main changes with respect to the first edition are:

(a) addition of an optional link redundancy layer;

(b) redefinition of “reserved” fields in link layer;

(c) evolution of USVCB and MSVCB components;

(d) evolution of encoding for the transmission of the sampled value buffer.

This document is identical to, and has been reproduced from, IEC 61850-9-2:2011+AMD1:2020 CSV, *Communication networks and systems for power utility automation – Part 9-2: Specific communication service mapping (SCSM) - Sampled values over ISO/IEC 8802-3*.

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FOREWORD

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International Standard IEC 61850-9-2 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this standard is based on the following documents:

FDIS	Report on voting
57/1133/FDIS	57/1161/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This second edition cancels and replaces the first edition published in 2004 and constitutes a technical revision.

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Main changes with respect to the first edition are:

- addition of an optional Link redundancy layer (Tables 3 to 6);
- redefinition of “reserved” fields in link layer (5.3.3.4);
- evolution of USVCB and MSVCB components (Tables 9, 10, 12);
- evolution of encoding for the transmission of the sampled value buffer (Table 14).

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61850 series, under the general title: *Communication networks and systems for power utility automation,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

This part of IEC 61850 defines the SCSM for sampled values over ISO/IEC 8802-3. The intent of this SCSM definition is to include the complete mapping of the sampled value model.

This part of IEC 61850 applies to electronic current and voltage transformers (ECT and EVT having a digital output), merging units, and intelligent electronic devices, for example protection units, bay controllers and meters, or sensors.

Process bus communication structures can be arranged in different ways as described in IEC/TR 61850-1. In addition to the transmission of sampled value data sets, which are directly connected to ISO/IEC 8802-3, a selection of IEC 61850-8-1 services is necessary to support the access to the SV control block. References to the relevant IEC 61850-8-1 services are provided in this SCSM. For less complex devices (for example merging units), the sampled value control block can be pre-configured, in which case there is no need to implement IEC 61850-8-1 services based on the MMS-Stack.

This document defines the mapping of sampled value class model (IEC 61850-7-2) to ISO/IEC 8802-3. This SCSM, in combination with IEC 61850-7 and IEC 61850-6, allows interoperability between devices from different manufacturers.

This standard does not specify individual implementations or products, nor does it constrain the implementation of entities and interfaces within a computer system. This standard specifies the externally visible functionality of implementations together with conformance requirements for such functionalities.

Reading guide:

- This document is an extended mapping specification of IEC 61850-8-1 to cover sampled value transmission over ISO/IEC 8802-3.
- This document can best be understood if the reader is thoroughly familiar with IEC 61850-7-1, IEC 61850-7-2, IEC 61850-7-3 and IEC 61850-7-4.
- The ACSI services defined in IEC 61850-7-2 are not explained in this part of IEC 61850.

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Communication networks and systems for power utility automation

Part 9.2: Specific communication service mapping (SCSM) — Sampled values over ISO/IEC 8802-3

1 Scope

This part of IEC 61850 defines the specific communication service mapping (SCSM) for the transmission of sampled values according to the abstract specification in IEC 61850-7-2. The mapping is that of the abstract model on a mixed stack using direct access to an ISO/IEC 8802-3 link for the transmission of the samples in combination with IEC 61850-8-1.

Each SCSM consists of three parts:

– a specification of the communication stack being used,

– the mapping of the abstract specifications of IEC 61850-7 series on the real elements of the stack being used, and

– the implementation specification of functionality, which is not covered by the stack being used.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60874-10-1, *Connectors for optical fibres and cables – Part 10-1: Detail specification for fibre optic connector type BFOC/2,5 terminated to multimode fibre type A1*

(withdrawn)

IEC 60874-10-2, *Connectors for optical fibres and cables – Part 10-2: Detail specification for fibre optic connector type BFOC/2,5 terminated to single-mode fibre type B1*

(withdrawn)

IEC 60874-10-3, *Connectors for optical fibres and cables – Part 10-3: Detail specification for fibre optic adaptor type BFOC/2,5 for single and multimode fibre*

(withdrawn)

IEC/TR 61850-1, *Communication networks and systems for power utility automation – Part 1: Introduction and overview*

IEC/TS 61850-2, *Communication networks and systems for power utility automation – Part 2: Glossary*

IEC 61850-6, *Communication networks and systems for power utility automation – Part 6: Configuration description language for communication in electrical substations related to IEDs*

IEC 61850-7-1, *Communication networks and systems for power utility automation – Part 7-1: Basic communication structure – Part 7-1: Principles and models*

IEC 61850-7-2, *Communication networks and systems for power utility automation – Part 7-2: Basic information and communication structure – Abstract communication service interface (ACSI)*

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